

REMARKS

This application has been carefully reviewed in light of the Office Action dated April 29, 2004. Claims 30, 32, 43-44, and 47 have been amended. The specification has been editorially revised. No new matter has been added. Applicant reserves the right to pursue the original claims and other claims in this and other applications.

The drawings are objected to under 37 C.F.R. § 1.83(a). The objection is respectfully traversed. A Submission of Replacement Sheets of Drawings (FIGS. 19(a-h) and FIGS. 20(a-c)) is being filed concurrently herewith. The present application is a continuation of U.S. Patent Application No. 09/494,549, filed January 31, 2000. The parent application was incorporated in its entirety into the present application by way of a preliminary amendment filed on July 18, 2003. Accordingly, the submission of FIGS. 19(a-h) and FIGS. 20(a-c) does not constitute new matter.

Claims 30-47 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Office Action asserts that 'polarization hologram' is not supported. Reconsideration is respectfully requested. Applicant's specification provides that "[t]he polarization hologram 90 . . . has diffracting effects depending on the polarizing directions of the incident beam. Specifically, the polarization hologram 90 allows the p-polarized light of the incident beam to pass through the polarization hologram 90 without diffraction, and diffracts 80% or more of the s-polarized light of the incident beam" (page 48, lines 11-17). In other words, polarized light enters the polarization hologram 90 and becomes effected.

For instance, the p-polarized light of the emission beam "passing through the polarization hologram 90 is converted into a circularly polarized beam at the quarter-

wave plate 15" (page 49, lines 1-3). In addition, the "s-polarized light of the reflection beam from the quarter-wave plate 15 enters the polarization hologram 90. The polarization hologram 90 diffracts 80% or more of the s-polarized light of the reflection beam to the photodetector 10B as the +1-order diffracted ray and the -1-order diffracted ray" (page 49, lines 8-13). As a result, "[t]he polarization hologram 90 diffracts the reflection beam in predetermined diffracting directions depending on the wavelength (L1/L2) of the incident reflection beam" (page 51, lines 6-8).

Claims 30-42 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. The Office Action asserts that "[t]he specification fails to teach that the birefringence layer is provided on the **same** substrate as the substrate used to apply the organic polymer material." Claim 30 has been amended to recite that the "birefringence layer is provided on a substrate in a periodic grating pattern." Withdrawal of the § 112, first paragraph, rejection is respectfully solicited.

Claims 30-47 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicant respectfully submits that claim 43 does not recite an 'incident reflection beam.' Claims 45-46 depend from claim 43 and also do not recite an 'incident reflection beam.' Claims 30, 44, and 47 have been amended to overcome the Examiner's concerns. The claim language 'incident reflection beam' has been changed to recite an 'incident beam.' Claim 32 has also been amended, as required. Withdrawal of the § 112, second paragraph, rejection is respectfully solicited.

Claims 30-42 stand rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential steps. The Office Action asserts that "the **steps** of forming the **periodic grating pattern on a birefringence film** by using a photomask

in a lithographic process” is an omitted step. Reconsideration is respectfully requested. Although M.P.E.P. § 2172.01 provides that “[a] claim which fails to interrelate essential elements of the invention as defined by applicant(s) in the specification may be rejected under 35 U.S.C. § 112, second paragraph,” the situation does not arise in the present application. Applicant claims a birefringence layer provided on a transparent substrate in a periodic grating pattern. The step of using a photomask in a lithographic process is not essential to the invention recited in the rejected claims (nor is it an essential element of the invention recited in claims 43-47).

Claims 30-33, 35-42, 43-45, and 47 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeda in view of Yoshimi. Reconsideration is respectfully requested. Takeda does not teach or suggest a “uni-directionally stretched birefringence layer,” as recited in claim 43, as amended, or a method of heating and stretching an “organic polymer material to form a uni-directionally stretched birefringence layer,” as recited in claim 30. Takeda’s birefringence film comprises two separate layers and is not a uni-directionally stretched birefringence layer.

Takeda discloses a first monomeric diacetylene film formed over a glass substrate 1 by evaporation. The film is polymerized by exposure to uv radiation to form a first polydiacetylene layer (column 8, lines 15-19). The polymerized layer is then “rubbed in one direction by a suitable means such as a silicon cloth, whereupon the polydiacetylene film is oriented in the rubbing direction” (column 8, lines 20-23). Next, a second polydiacetylene layer is formed on the first polydiacetylene layer in an analogous fashion.

Yoshimi is relied upon for disclosing polymer film that is heat stretched and adds nothing to rectify the deficiencies of Takeda. Yoshimi discloses a “birefringent

film in which molecules oriented in a direction parallel to the film plane and molecules in the direction of the thickness of the film are present in a mixed state" (column 2, lines 23-27). Yoshimi's birefringent film is formed by a "stretching treatment in which a resin film to be stretched is laminated on one or both sides thereof with a shrinkable film, thereby preparing a laminate, and the laminate is, then heat stretched, thereby stretching the resin film while imparting thereto the ability to shrink in the direction crossing the stretching direction" (column 3, lines 28-34). Yoshimi does not teach or suggest Applicant's claimed uni-directionally stretched birefringence layer.

Moreover, there is no adequate motivation to combine the two references. Takeda does not teach or suggest laminating the two birefringent layers with a shrinkable film. Takeda discloses first and second birefringent layers rubbed in the same direction. Yoshimi's film is formed by laminating and stretching resin film; not by rubbing. The methods are different from each other and the resulting birefringent films are different. Yoshimi's film has molecules oriented in different directions. Takeda's film has molecules oriented in the same direction. Moreover, the combination would defeat the purpose of Takeda: forming a birefringent film comprising two polydiacetylene films oriented in the same rubbing direction. Employing Yoshimi's disclosure would result in two laminated polydiacetylene films with molecules oriented in different directions.

Claims 31-33 and 35-42 depend from claim 30. Claims 44-45 and 47 depend from claim 43. Dependent claims 31-33, 35-42, 44-45, and 47 should be allowable for at least the reasons provided above with regard to independent claims 30 and 43.

Applicant also respectfully submits that the Office Action has not set forth a *prima facie* case of obviousness in regards to claims 35 and 37-39. Yoshimi discloses a

heat stretching process conducted at a temperature between 100 to 160° C. Applicant's claimed heat stretching process is "performed at a temperature of 350° C," as recited in claim 35. Applicant's claimed temperature is about twice as high as Yoshimi's disclosed temperature. Applicant's specification provides that the heating temperature and stretching controls the differences between the refractive indexes (page 65, lines 10-12). The references do not teach or suggest any refractive indexes for the organic polymer material. Thus, claims 35 and 37-39 are not rendered obvious by the cited references. These are additional reasons for their allowance.

Claim 34 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeda in view of Yoshimi, and further in view of Yamamoto. Reconsideration is respectfully requested. Claim 34 depends from claim 33, which depends from claim 30. For at least the reasons provided above regarding claim 30, claim 34 is also allowable. In particular, Takeda and Yoshimi do not teach or suggest a method of heating and stretching an "organic polymer material to form a uni-directionally stretched birefringence layer," as recited in claim 30. Yamamoto is relied upon for disclosing a particular acidic solution and adds nothing to rectify the deficiencies of Takeda and Yoshimi.

Claim 46 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeda in view of Yoshimi, and further in view of Iwatsuka. Reconsideration is respectfully requested. Claim 46 depends from claim 45, which depends from claim 43. For at least the reasons provided above regarding claim 43, claim 46 is also allowable. Specifically, Takeda and Yoshimi do not teach or suggest a uni-directionally stretched birefringence layer. Iwatsuka is relied upon for disclosing a second substrate formed with an adhesive layer as the isotropic layer and adds nothing to rectify the deficiencies of Takeda and Yoshimi.

Claims 30-47 stand rejected under the judicially created doctrine of obviousness type double-patenting as being unpatentable over claims 1-9 of Funato, U.S. Patent No.: 6,618,344. Reconsideration is respectfully requested. Claim 1 of Funato '344 recites an optical pickup apparatus with "a birefringence layer of a stretched organic polymer material." In contrast, claim 43 recites a polarization hologram with "a uni-directionally stretched birefringence layer." The claims in the pending application are not obvious variants of the claims in Funato '344. Accordingly, withdrawal of the obviousness type double-patenting rejection is respectfully solicited.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

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